

## M 4.0, 3km NW of Manhattan, Montana

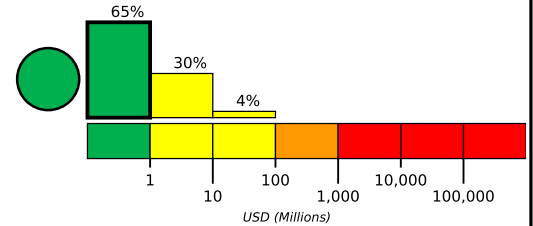
Origin Time: 2019-07-14 01:52:46 UTC (Sat 19:52:46 local)  
Location: 45.8811° N 111.3693° W Depth: 6.0 km

Created: 1 day, 0 hours after earthquake

### Estimated Fatalities

Green alert for shaking-related fatalities and economic losses. There is a low likelihood of casualties and damage.

### Estimated Economic Losses

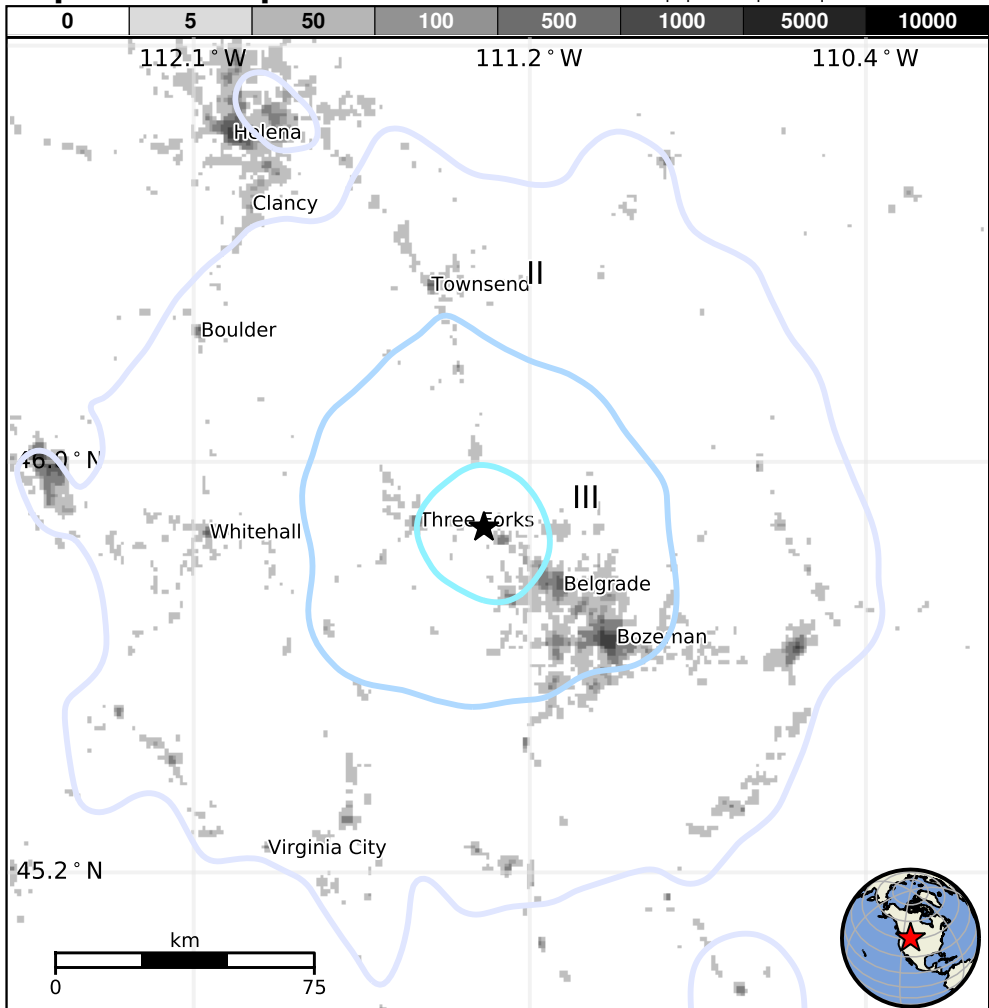


### Estimated Population Exposed to Earthquake Shaking

ESTIMATED POPULATION EXPOSURE (k=x1000)		69k*	172k	7k	0	0	0	0	0	0
ESTIMATED MODIFIED MERCALLI INTENSITY		I	II-III	IV	V	VI	VII	VIII	IX	X+
PERCEIVED SHAKING		Not felt	Weak	Light	Moderate	Strong	Very Strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	Resistant Structures	None	None	None	V. Light	Light	Moderate	Mod./Heavy	Heavy	V. Heavy
	Vulnerable Structures	None	None	None	Light	Moderate	Mod./Heavy	Heavy	V. Heavy	V. Heavy

\*Estimated exposure only includes population within the map area.

### Population Exposure



### Structures

Overall, the population in this region resides in structures that are resistant to earthquake shaking, though vulnerable structures exist. The predominant vulnerable building types are unreinforced brick masonry and reinforced masonry construction.

### Historical Earthquakes

Date (UTC)	Dist. (km)	Mag.	Max MMI(#)	Shaking Deaths
1984-08-22	254	5.5	V(3k)	—
1994-02-03	346	5.8	VIII(1k)	—
1983-10-28	277	6.9	VII(2k)	2

Recent earthquakes in this area have caused secondary hazards such as landslides that might have contributed to losses.

### Selected City Exposure

from GeoNames.org

MMI	City	Population
IV	Manhattan	2k
IV	Three Forks	2k
III	Belgrade	7k
III	Bozeman	37k
III	Four Corners	3k
III	Townsend	2k
II	Livingston	7k
II	Helena Valley Southeast	8k
II	Butte	34k
I	Helena	28k
I	Helena Valley West Central	8k

PAGER content is automatically generated, and only considers losses due to structural damage. Limitations of input data, shaking estimates, and loss models may add uncertainty.

<https://earthquake.usgs.gov/earthquakes/eventpage/us70004jv8#pager>

bold cities appear on map.

(k = x1000)

Event ID: us70004jv8